
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant(s): Richard F. Dean

Conf. No.: 3646

Application No.: 10/786,709

Art Unit: 2618

Filed: February 24, 2004

Examiner:
Dominic E. Rego

Title: REPEATER OSCILLATION PREVENTION

BRIEF ON APPEAL UNDER 37 C.F.R. § 41.37

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Commissioner for Patents
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Sir:

In response to the Final Office Action of May 6, 2010 and the Advisory Action of July 27, 2010 Appellants on September 7, 2010 requested an Appeal to consider the issues raised in the Final Office Action and maintained in the Advisory Action. Accordingly, this Brief on Appeal under 37 C.F.R. §41.37 is being filed.

The fees required under § 41.20(b)(2) should be charged to Deposit Account No. 17-0026.

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I. Real Party in Interest

The real party in interest in this appeal is QUALCOMM Incorporated, 5775 Morehouse Drive, San Diego, California, 92121.

II. Related Appeals and Interferences

To the best of Appellants' knowledge, there are no other previous or pending appeals of this Application, or patent interference proceedings, or judicial proceedings which may be related to, directly affect, or be directly affected by, or have a bearing on the Board's decision of this Appeal.

III. Status of Claims

In the present Application, claim 22 is on Appeal

1. Claims cancelled: 2, 11, 23-40
2. Claims withdrawn from consideration but not cancelled: none
3. Claims pending: 1, 3-10, and 12-22
4. Claims allowed: 1, 3-10, and 12-21
5. Claims rejected: 22

IV. Status of Amendments

There are no un-entered amendments.

V. Summary of the Claimed Subject Matter

Independent claim 22 is directed to a machine-readable storage medium with instructions encoded thereon (e.g., **paragraph [0013] and paragraph [0051]**) to detect oscillation in a repeater system with an embedded wireless communication device (WCD) (e.g., **paragraph 0038, FIG. 4**). An attempt to establish a call between the WCD and base station is made, and oscillation is determined if the call cannot be established (e.g., **paragraph [0041]**).

VI. Grounds of Rejection to be Reviewed on Appeal

In the Final Office Action dated May 6, 2010 ("the Final Office Action"), claim 22 was rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. The Examiner affirmed the rejection in the Advisory Action dated July 27, 2010 ("the Advisory Action").

This rejection is discussed in the Argument section below.

VII. Argument

The only remaining issue in the case is whether the phrase “storage medium” of claim 22 is directed to patentable subject matter.

A. The use of the term “storage medium” in the specification is consistent with its plain meaning

In its initial form, claim 22 was directed to “a computer readable medium,” rather than “a machine readable storage medium.” At paragraph [0013], the specification notes:

The term “machine readable medium” includes, but is not limited to portable or fixed storage devices, optical storage devices, wireless channels and various other mediums capable of storing, containing or carrying instruction(s) and/or data.

Although the phrase “wireless channel” is not defined in the specification and has not been discussed during the prosecution of the case, its use as a type of “medium” is consistent with the interpretation that it refers to a transmission medium for wireless signals. Because the specification’s definition of “machine readable medium” includes both the example of a wireless channel and a more general disclosure of a medium for “carrying” instruction(s) and/or data, Applicant narrowed the claim by inclusion of the word “storage.” That is, the scope of claim 22 was narrowed from a medium capable of “storing, containing or carrying instruction(s) and/or data” to a “medium for storing information.”

As would be expected, the specification’s description of a “storage medium” at paragraph [0013] includes only media to store instructions and/or data:

Moreover, as disclosed herein, a storage medium may represent one or more devices for storing data, including read only memory (ROM), random access memory (RAM), magnetic disk storage mediums, optical storage mediums, flash memory devices and/or other machine readable mediums for storing information.

The portion of paragraph [0013] describing a “storage medium” does *not* include a wireless channel among the listed media, and does *not* include the word “carrying.” Instead, it lists a number of example “devices for storing data” and then includes a general statement that “other machine readable mediums *for storing information*” are embraced by the term (emphasis added). This description is consistent with the plain meaning of the term “storage” in the field of electronics (submitted with the Response to Final Office Action filed July 6, 2010, and believed to be agreed to by the Examiner in the Advisory Action: “Further, Applicant defined the word ‘storage’ and ‘propagate’ in numerous place in the arguments which the Examiner fully agrees with these definition, but in the specification of para. [0021] which states ‘a machine-readable medium includes wireless channels.’”).

The Final Office Action and the Advisory Action give two reasons for rejecting claim 22 under 35 U.S.C. §101. At page 2 the Advisory Action states: The Examiner respectfully disagrees with Applicant because a wireless channel has the capability of CARRYING instructions. Further, the wireless channel has the capability of temporarily storing the data during the transmission.”

Regarding the first reason, Applicant agrees that a wireless channel carries instructions. However, the rejection of claim 22 using this rationale is erroneous because, as shown above, Applicant narrowed claim 22 to *exclude* media that carry data and to cover the subset of media that store information.

The rejection of claim 22 using the second reason is erroneous because it again ignores the fact that wireless channel is only included in the specification’s description of a “machine readable medium” and is *not* included in the specification’s description of a “storage medium.” Even if the teachings of the specification are disregarded, the allegation is unclear, unsupported by any evidence, and fails to form the basis for a proper rejection under 35 U.S.C. §101.

One interpretation is that the Advisory Action is alleging that a wireless channel includes storage elements to temporarily store the information, and so may be referred to as a storage medium. According to this logic, a medium that includes both storage and transmission elements is non-statutory. If that rationale were sound, then

any storage medium that also includes wires that transmit signals would be non-statutory; any medium could be rendered non-statutory merely by construing the claim language to include a transmissive medium. However, the rationale is clearly erroneous, since the storage elements are statutory *manufactures* and bring the devices into the realm of patentable subject matter.

Another possible interpretation is that the Advisory Action is alleging that the propagating signal can be said to be “temporarily stored” as it propagates. This rationale is also clearly erroneous; the signal is transitory or non-transitory, propagating or stored. It cannot be “stored” for the purposes of calling it a “storage medium” and yet “propagating” for the purposes of finding it non-statutory.

B. A storage medium belongs to one or more statutory classes

Each of the examples of a “storage medium” described in the specification is at least a manufacture, and neither the Final Rejection nor the Advisory Action provides any example of a “medium for storing information” that does not fall into the category of a manufacture. Additionally, in *Ex Parte Nuijten*, the Board of Patent Appeals and Interferences previously found that a “storage medium” was a statutory manufacture. (*Ex parte Nuijten*, 2006 Pat. App. LEXIS 50 *16-17, 84 U.S.P.Q.2D (BNA) 1335, Board of Patent Appeals and Interferences 2006).

At page 2, the Final Office Action cites *In re Nuijten*, 500 F.3d 1346 (Fed. Cir. 2007) as supporting authority for the current rejection of claim 22 under 35 U.S.C. § 101. However, claim 15 of Nuijten’s patent application, directed to “a storage medium,” was determined to be a statutory manufacture by the Board of Patent Appeals and Interferences. The Board of Patent Appeals and Interferences found that “the storage medium in claim 15 nominally puts the claim into the statutory category of a ‘manufacture’ and the signal is ‘functional’ because it can be used by a machine to produce a useful result, as with the ‘data structure stored in memory’ in Lowry. Accordingly we conclude that claim 15 is statutory subject matter.” (*Ex parte Nuijten*, 2006 Pat. App. LEXIS 50 *16-17, 84 U.S.P.Q.2D (BNA) 1335, Board of Patent Appeals and Interferences 2006).

Since the Board found claim 15 to be statutory, it was not the subject of the appeal in *In re Nuijten*. However, *In re Nuijten* distinguished apparatus for storing signals from the signals themselves: “The claims whose disallowance Nuijten appeals are not traditional step-by-step process claims, nor are they directed to any apparatus for generating, receiving, processing, or *storing* the signals.” (*In re Nuijten* at 1351, emphasis added). Nuijten’s allowed claim 15 was directed to “a storage medium having stored thereon a signal with embedded supplemental data,” and was not even before the court on appeal. (*In re Nuijten* at 1351).

Applicant would like to briefly address *Ex parte Kelkar*, Appeal 2009-004634 of Application 10/629,448, which affirmed the Examiner’s conclusion in that case that “the program products stored on a recordable medium read on carrier wave storage.” (*Ex parte Kelkar*, at page 5), and directed attention to 1351 Off. Gaz. Pat. Office 121 (Feb 23, 2010).

Applicant assumes that “carrier wave storage” in *Ex parte Kelkar* is meant to allege that the phrase “storage medium” can be applied to modulation of information onto a carrier wave prior to transmission. First, this is not the plain meaning of the word “storage” in the field of electronics, and “claims are given their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art.” (Please see MPEP 2111.10). In the field of electronics, signals are *modulated* onto a *carrier* wave; they are not stored. The “carrier” wave is not referred to as a “storage” wave. Second, the current specification contains no disclosure whatsoever that the word “storage” encompasses modulation. Third, the idea that the carrier wave and information are separate entities is an *abstraction*. Physically, a *single signal* is transmitted.

For example, in a GPS signal, a coarse acquisition code and a navigation message are modulated onto a carrier wave, and transmitted as a single signal. In the abstract the transmitted signal can be represented as the sum of the sources used in its creation; in reality it is one signal being transmitted on a medium (for a satellite signal it is transmitted through the atmosphere to the antenna of the receiver). In order to recover the data upon reception at a satellite receiver, the signal needs to be

demodulated. Different frequency components of the transmitted signal do have different transmission properties, but although a particular frequency component may be mainly attributable to one or the other of the sources that were used to create the transmitted signal, some Fourier components have contributions from more than one source.

Because the plain meaning of the word “storage” in the field of electronics does not embrace modulation, and because the specification does not use the word “storage” to embrace modulation, such a construction in the current matter would be unreasonable.

Regarding the reference to 1351 Off. Gaz. Pat. Office 212 (“the Guidelines”), Applicant has already precluded the interpretation of claim 22 as being directed to a transitory propagating signal by amending the claim to recite a “storage medium.” *In re Nuijten* does not stand for the proposition that claimed medium need be *non-transitory* to be statutory, but instead that the claimed medium needs to belong to a *statutory class*. A storage medium as recited in claim 22 is a statutory manufacture. Additionally, it is not clear to the undersigned how modifying the term “computer readable medium” with the term “non-transitory” necessarily renders a claim statutory. As noted in *In re Nuijten*, a signal propagates on a medium: “The claims on appeal cover transitory electrical and electromagnetic signals propagating through some medium, such as wires, air, or a vacuum.” (*In re Nuijten* at 1352). Wires are indisputably non-transitory, so if the term “computer readable medium” would read on a signal being transmitted through a wire, then adding the term “non-transitory” before it would not cure this defect. Amending the claim to include the term “storage” does not raise this issue.

VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A. As indicated above, the claims in Appendix A include the amendments filed by Appellants on February 3, 2010.

IX. EVIDENCE

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the Office is being submitted.

X. RELATED PROCEEDINGS

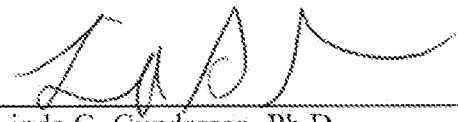
No related proceedings are referenced in Section II, above.

XI. CONCLUSION

Appellants respectfully submit that claim 22 is statutory and the rejection under 35 U.S.C. § 101 should be reversed.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 17-0026 for any additional fees required under 37 C.F.R. § 1.16 or 1.17, particularly extension of time fees.

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APPENDIX A: CLAIMS

1. (Previously Presented) A method for detecting oscillation in a repeater system comprising:
 - processing communication signals with a wireless communication device circuit embedded in a repeater; and
 - using the communication signals processed at the wireless communication device circuit to determine if the repeater system is in oscillation by attempting to establish a call from the wireless communication device circuit to a base station, and determining oscillation if the call cannot be established.
2. (Canceled)
3. (Original) The method of claim 1, wherein using the wireless communication device circuit comprises:
 - using the wireless communication device circuit to measure signal quality from the base station; and
 - determining oscillation if the signal quality meets a certain criteria.
4. (Original) The method of claim 3, wherein determining oscillation comprises determining oscillation if the signal quality degrades below a certain level.
5. (Original) The method of claim 3, wherein determining oscillation comprises

determining oscillation if the signal quality degrades from a level that existed before the repeater was used.

6. (Original) The method of claim 3, wherein using the wireless communication device circuit comprises:

obtaining signal to noise ratio value to measure the signal quality.

7. (Original) The method of claim 1, wherein using the wireless communication device circuit comprises:

using the wireless communication device circuit to estimate at least one open loop power control parameter;

establishing a communication link from the wireless communication device circuit to a base station using the estimated open loop power control parameter;

receiving at least one closed loop power control command from the base station; and

determining oscillation if the closed loop power control command is greater than a certain amount.

8. (Original) The method of claim 7, wherein using the wireless communication device circuit comprises estimating at least a required transmit power to complete the call, wherein receiving closed loop power control commands comprises receiving at least power adjustment information, and wherein determining oscillation comprises determining oscillation if the power adjustment information is greater than a certain amount.

9. (Original) The method of claim 1, further comprising:

reducing gain of repeater if the repeater system is in oscillation.

10. (Previously Presented) Apparatus for detecting oscillation in a repeater system comprising:

a wireless communication device circuit embedded in a repeater, wherein the wireless communication device circuit is configured to process communication signals;

means for using the communication signals processed at the wireless communication device circuit to determine if the repeater system is in oscillation;

means for establishing a call from the wireless communication device circuit to a base station; and

means for determining oscillation if the call cannot be established.

11. (Canceled)

12. (Original) The apparatus of claim 10, wherein means for using the wireless communication device circuit comprises:

means for using the wireless communication device circuit to measure signal quality from the base station; and

means for determining oscillation if the signal quality meets a certain criteria.

13. (Previously Presented) The apparatus of claim 12, wherein the means for determining oscillation based on signal quality is configured to determine oscillation if the signal quality degrades below a certain level.

14. (Previously Presented) The apparatus of claim 12, wherein the means for determining oscillation based on signal quality is configured to determine oscillation if the signal quality degrades from a level that existed before the repeater was used.

15. (Original) The apparatus of claim 12, wherein means for using the wireless communication device circuit comprises:

means for obtaining signal to noise ratio value to measure the signal quality.

16. (Original) The apparatus of claim 10, wherein means for using the wireless communication device circuit comprises:

means for using the wireless communication device circuit to estimate at least one open loop power control parameter;

means for establishing a communication link from the wireless communication device circuit to a base station using the estimated open loop power control parameter;

means for receiving at least one closed loop power control command from the base station; and

means for determining oscillation if the closed loop power control command is greater than a certain amount.

17. (Previously Presented) The apparatus of claim 16, wherein means for using the wireless communication device circuit is configured to estimate at least a required transmit power to complete the call, wherein means for receiving closed loop power control commands comprises means for receiving at least power adjustment information, and wherein the means for determining oscillation based on the closed loop power control command is configured to

determine oscillation if the power adjustment information is greater than a certain amount.

18. (Original) The apparatus of claim 10, further comprising:

means for reducing gain of repeater if the repeater system is in oscillation.

19. (Previously Presented) An apparatus for detecting oscillation in a repeater system comprising:

a wireless communication device (WCD) configured to detect if the repeater system is in oscillation based on an attempt to establish a call to a base station, wherein oscillation is detected if the call cannot be established; and

a processor coupled to the WCD, configured to reduce the gain of the repeater system if the repeater system is in oscillation.

20. (Previously Presented) The method of claim 1, wherein the using step uses the ratio of energy of a chip of a pilot signal to total interference (E_c/I_o) obtained from the processed communication signals to determine if the repeater system is in oscillation.

21. (Previously Presented) The method of claim 1, wherein the call is initiated at the wireless communication device circuit.

22. (Previously Presented) A machine-readable storage medium having instructions encoded thereon, which, when executed by a machine that is configured to read the encoded instructions from the machine-readable medium, cause the machine to perform operations, the instructions comprising:

program code to process communication signals with a wireless communication device circuit embedded in a repeater;

program code to attempt to establish a call from the wireless communication device circuit to a base station; and

program code to determine oscillation if the call cannot be established.

23. – 40. (Cancelled)

APPENDIX B: EVIDENCE

(None)

APPENDIX C: RELATED PROCEEDINGS

(None)